California Monthly Climate Summary
July 2009

Weather Highlights

July 2009 was a warm and dry month for California. According to the Western Region Climate Center's California Climate Tracker, the monthly average temperature was 74.6°F which is 1.8°F higher than the long-term average of 72.8°F. This continues the streak of warmer than average Julys that started back in 2002. With a statewide average of 0.03 inches, precipitation for June was 16% of the long term average.

July's weather was a typical summer month of hot weather and scattered showers over the mountain regions. The month started with high pressure system that extended across the Southwestern United States. Subtropical moisture moving northward sparked a few thunderstorms over the Sierra. The second week of July brought a persistent low pressure trough and below normal temperatures for most of the state. Precipitation continued to be limited to isolated thunderstorms. High pressure moved back in for the third week with nighttime temperatures remaining warm due to some high clouds. High pressure continued to keep the state warm through the rest of the month with the occasional weak low pressure system continuing to cause isolated showers.

Preliminary records, reported on the National Weather Service Record Event Report, show that statewide there were 56 temperature records tied or broken and zero precipitation records tied or broken for the month. Of the 56 temperature records, 32 were for new high minimum temperatures. Records were set over 16 days of the month. The longest standing record broken this month was Fresno's record high temperature for July 20. In 1895 the high temperature reached 111°F and has not been exceeded until this year when the high temperature made it to 112°F. July 20th was a hot day that also set high temperature records in Bakersfield which reached 111°F beating the 1960 record of 110°F, Merced whose 109°F beat the 2006 value of 103°F, and Madera which beat the 2006 mark of 106°F with a reading of 108°F. July 17th saw several records set including Santa Ana which tied a 1998 reading of 94°F. This value tied Indio's minimum temperature for the 17th which broke the old record of 88°F set back in 1977. Not to be outdone, on July 18th, Needles only dropped to 95°F which broke the 1998 record of 93°F. This is a far cry from the July 9th minimum temperature at Campo which was 38°F tying the mark also set back in 1977.

For the California Data Exchange Center's (CDEC) network of temperature gages used in this report, 15 stations recorded a minimum temperature below freezing in June while 101 stations reached or exceeded 100°F at least once during the month. Statewide extremes from the CDEC network of temperature gages are shown below. Also shown are the monthly average extremes from the CIMIS network. A table of regional average minimum, mean, and maximum temperatures from the CDEC and CIMIS networks is also shown.

Precipitation in July was below normal for all regions of the state. For the CDEC precipitation gages for July 2009, the largest amount of precipitation recorded was Doyle with 0.88 inches. This is 383% of the average precipitation for this station for July. At the other end of the spectrum, 82 stations recorded no precipitation for the month. For the CIMIS network, Big Bear Lake in San Bernardino County topped the precipitation charts with 0.63 inches for the month and 112 stations recorded no precipitation. Some CIMIS gages may show large precipitation totals if the gages are not covered during irrigation activities so care should be given to review precipitation data used from this network. The 8-Station Index for northern California precipitation recorded 0.04 inches in July with just 2 days showing precipitation. On average, only 0.2 inches of precipitation is recorded for the 8-Station index. Statewide, the average precipitation for July was 28% of the long-term average based on the California Data Exchange Center (CDEC) gages. Precipitation percentages by region from the CDEC gages are shown in a table at the end of this document.

In October 2008, California joined the Community Collaborative Rain, Hail and Snow Network (CoCoRaHS). This group uses citizen volunteers to record rain, hail and snow data. The users enter the data online at the CoCoRaHS web site. The web site provides the opportunity to see spatial detail of rain and snow patterns in participating states. By the end of July 2009, California has had more than 500 volunteers sign up spanning 48 of California's 58 counties. The county with the most volunteers at the end of June is Sonoma with more than 80 volunteers. For the month of July 6,298 reports were recorded for California. The largest daily rain total for CoCoRaHS- CA in July was in Greenview, Siskiyou County with 0.2 inches recorded on 7/2/09. No hail reports were submitted in July for California. To join CoCoRaHS, please visit http://www.cocorahs.org.

Snowpack and Water Supply Conditions

Outlooks for the water year 2009 water supply index categories are dry for both the Sacramento Basin and the San Joaquin Basin. Water supply information for California can be found at http://cdec.water.ca.gov/water_supply.html. A historical listing of water year categories for both basins can be found at http://cdec.water.ca.gov/cgi-progs/iodir/WSIHIST.

Drought Monitor and Seasonal Outlook

For July, the Drought Monitor showed no real change in the depiction of drought in California. The maps for California for June 30, 2009 and July 28, 2009 are shown below. The Drought Monitor maps can be found on the National Drought Mitigation Center's (NDMC) website http://drought.unl.edu/dm/. These maps are largely a reflection of precipitation and soil moisture deficit estimates. The very northwest and southeast parts of the state are not considered in any drought condition. As of the July 28th depiction, the rest of California is depicted in either D0 (abnormally dry), D1 (moderate drought) conditions, or D2 (severe drought) conditions. Maps are updated weekly.

The U.S. Seasonal Drought Outlook for August through October from NOAA depicts California with persisting drought conditions across the state based on climatology. Updates are provided twice per month. Maps and information can be found at http://www.cpc.noaa.gov/products/expert_assessment/seasonal_drought.html.

ENSO Conditions and Long-Range Outlooks

The El Niño/Southern Oscillation (ENSO) is being classified as an El Niño pattern. Equatorial sea surface temperature anomalies for the tropical Pacific for July have been positive with values of 0.9°C in the Niño 3.4. The May through July 3-month running mean of the Ocean Niño Index (ONI) is 0.6 which is the first ONI value above the threshold to qualify for an El Niño event. For conditions to be classified as an El Nino event, five consecutive ONI values need to be above the threshold value of 0.5. Most forecast models have the tropical sea surface temperatures remaining in El Niño conditions through the early part of 2010. More information can be found at the Climate Prediction Center's web site:
http://www.cpc.ncep.noaa.gov/products/analysis_monitoring/enso_advisory/
Updates are posted weekly. The latest three month outlook (August through October) from NOAA indicates above normal temperatures for the southeast desert area of California. Equal chances of above or below average temperatures are forecast for the rest of the state. For precipitation, below normal precipitation is forecast for the northwestern portion of the state with equal chances forecast for the rest of the state. Outlook plots and discussions can be fount at http://www.wrcc.dri.edu/longrang/. General weather information of interest can be found at http://www.noaawatch.gov/. For anomaly information please see http://www.wrcc.dri.edu/anom/cal_anom.html.

Agricultural Data

July's was harvest month for many crops in California. Wheat harvest was completed at the beginning of the month while alfalfa went through its third and fourth cutting. Chickpea harvest was completed in July while safflower fields were dried in preparation for harvest. Nectarines, cling peaches, plums, and apricots were all undergoing harvest during July as were blackberry, boysenberry, blueberry, and pomegranate crops. In the south San Joaquin Valley and Tulare basin, peppers, squash, eggplant, cucumber, tomatoes, melon, sweet corn, carrots, onions, and garlic were all being harvested. Supplemental feeding of livestock continued in July as range conditions continued to degrade. Milk production slowed because of the warm weather and some dairies continued to thin their herds. Fire hazard remained high due to dry conditions and warm temperatures. For further crop information see http://www.nass.usda.gov/index.asp.

Other Climate Summaries

California Climate Tracker (new product of Western Region Climate Center)
Golden Gate Weather Service Climate Summary
NOAA Monthly State of the Climate Report

Statewide Extremes (CDEC)
High Temperature – 120°F (Rice Valley, Colorado River Desert)
Low Temperature – 26°F (Tuolumne Meadows, San Joaquin)
High Precipitation – 0.88 inches (Mount Shasta City, Sacramento Basin)
Low Precipitation – 0 inches (82 Stations)

Statewide Extremes (CIMIS)
High Average Maximum Temperature – 113.2^{0}F (Salton Sea East, Imperial County)
Low Average Minimum Temperature – 43.5^{0}F (Alturas, Modoc County)
High Precipitation – 0.63 inches (Big Bear Lake, San Bernardino County)*
Low Precipitation – 0 inches (112 stations)
*Sometimes irrigation water from sprinklers gets counted as precipitation if the gage is not covered.

Statewide Precipitation Statistics

Hydrologic Region	Region Weight	Basin Reporting			Stations Reporting			% of Historic Average	
		Basins	July	Oct-July	Stations	July	Oct-July	July	Oct-July
North Coast	0.27	5	4	4	17	10	9	76.7%	80%
SF Bay	0.03	3	3	3	6	5	5	0%	91%
Central Coast	0.06	5	2	2	10	2	2	0%	59%
South Coast	0.06	5	5	5	15	11	11	3.6%	66%
Sacramento River	0.26	10	9	8	43	21	20	4.9%	90%
San Joaquin River	0.12	8	7	7	27	19	18	1.0%	89%
Tulare Lake	0.07	5	5	5	27	23	25	3.4%	80%
North Lahontan	0.04	6	6	6	14	10	9	49.4%	76%
South Lahontan	0.06	5	2	2	14	3	3	47.1%	108%
Colorado River	0.03	2	2	2	6	3	3	9.2%	81%
Statewide Weighted Average	1	54	45	44	179	107	105	27.6%	83%

Statewide Mean Temperature Data by Hydrologic Region (degrees F)

Hydrologic Region	No. Stations	Minimum	Average	Maximum
North Coast	27	44.9	68.8	93.9
SF Bay	18	51.2	67.7	89.0
Central Coast	36	52.5	66.5	83.7
South Coast	61	56.2	74.7	95.7
Sacramento	78	50.1	74.1	97.5
San Joaquin	71	53.1	74.3	95.4
Tulare Lake	16	46.0	68.3	89.0
North Lahontan	20	39.8	62.5	82.2
South Lahontan	20	54.3	74.6	93.5
Colorado River Desert	22	75.0	93.7	110.
Statewide Weighted Average	369	49.9	71.8	94.0

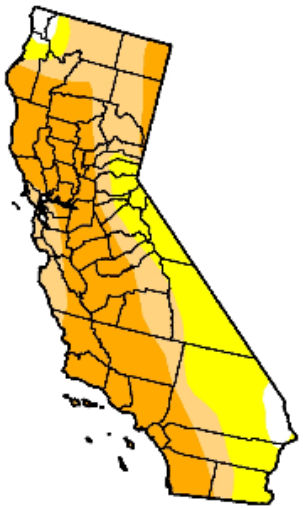
U.S. Drought Monitor

California

June 30, 2009
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2.9	97.1	72.0	44.3	0.0	0.0
Last Week (06/23/2009 map)	2.9	97.1	72.0	44.3	0.0	0.0
3 Months Ago (04/07/2009 map)	5.2	94.8	62.7	35.5	0.0	0.0
Start of Calendar Year (01/06/2009 map)	1.7	98.3	88.2	41.3	2.8	0.0
Start of Water Year (10/07/2008 map)	0.0	100.0	95.9	55.0	0.0	0.0
One Year Ago (07/01/2008 map)	0.2	99.8	89.2	18.1	0.0	0.0



Intensity:

- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements

http://drought.unl.edu/dm

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Author: R. Tinker, CPC/NOAA

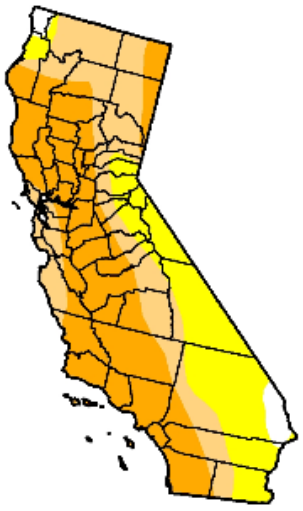
U.S. Drought Monitor

California

July 28, 2009
Valid 7 a.m. EST

Drought Conditions (Percent Area)

	None	D0-D4	D1-D4	D2-D4	D3-D4	D4
Current	2.5	97.5	72.8	44.3	0.0	0.0
Last Week (07/21/2009 map)	2.5	97.5	72.8	44.3	0.0	0.0
3 Months Ago (05/05/2009 map)	3.6	96.4	72.1	35.3	0.0	0.0
Start of Calendar Year (01/06/2009 map)	1.7	98.3	88.2	41.3	2.8	0.0
Start of Water Year (10/07/2008 map)	0.0	100.0	95.9	55.0	0.0	0.0
One Year Ago (07/29/2008 map)	0.1	99.9	88.9	38.7	0.0	0.0



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http://drought.unl.edu/dm

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